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## A DECISION THEORETICAL ANALYSIS OF DECISIONS OF THE DUTCH GOVERNMENT IN EXILE DURING WORLD WAR II

I.N. Gallhofer, W.E. Saris<sup>+</sup>

This paper describes a decision theoretical analysis of decisions of the Dutch government in exile in London in 1940/41 with respect to the transference of the seat of the government to the Dutch East-Indies.

Combined with a text-analysis procedure developed by the authors, the decision theoretical approach to the related documents produced very useful insights: the decision process and the influence-pattern of the different governmental advisers could be detected and the decision rules which explain the choices could be perfectly predicted, based on the quality of the value- and probability statements.(1)

### 1. INTRODUCTION(2)

Shortly after the German invasion of the neutral Netherlands on May 10, 1940, the Dutch government and the Queen fled to Britain and established in London the seat of the government in exile. They became allies with the British and French in the war against Germany. Although the government and the Queen lived in exile, they still possessed a vast free territory, the Dutch East-Indies, administered by the Dutch Governor General Tjarda van Starckenborgh Stachouwer.

Therefore quite soon after the occupation of the motherland, the government considered whether or not it would be advisable to transfer its seat to its colony. With the entrance of Italy into the war on the German side (June 10, 1940), and the French armistice with Germany (June 22, 1940), the transference question was considered to be even more urgent since these new developments affected Dutch relations with the above mentioned nations.

A study of the documents shows that the deliberations with respect to the transference of the seat of the government took place in two phases, i.e. from June 1940 till August 1940 and again in January 1941.

We here analyze, by means of a systematic procedure, this decision making process. Furthermore, we investigate whether decision models found in experimental studies can also explain the choices in this real life situation.

The following sections first discuss the decision theoretical approach, the methodology and the hypotheses with respect to the applicability of decision models. Thereafter, the results are described and, subsequently, some conclusions are drawn.

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## 2. THE DECISION THEORETICAL APPROACH

Decision theory has been developed as a normative approach to decision making by Von Neumann and Morgenstern (3). Applying this approach to descriptive studies(4) the same concepts are used as in normative studies, i.e. possible actions, outcomes, subjective probabilities and values of the outcomes. Given these characteristics, a decision problem can be represented by a decision tree(5) and summarized in a decision diagram. A simplified example of the decisions discussed in this paper is presented in table 1.

Table 1: Simplified example of a decision problem

Outcomes	Strategies					
	Transfer the seat of the government from London to the East-Indies (S1)		Transfer a minority of ministers permanently or temporarily to the East-Indies (S2)		Do not transfer the seat of the government (S3)	
Position of the government: improved/ maintained (01)	V11	P11	V12	P12	V13	P13
deteriorated (02)	V21	(1-P11)	V22	(1-P12)	V23	(1-P13)
Position of the East-Indies: maintained (03)	V31	P31	V32	P32	V33	P33
deteriorated (04)	V41	(1-P31)	V42	(1-P32)	V43	(1-P33)
Position of the motherland: improved/ maintained (05)	V51	P51	V52	(P52)	V53	P53
deteriorated (06)	V61	(1-P51)	V62	(1-P52)	V63	(1-P53)

Table 1 shows that the decision maker considered three possible strategies. In order to make a choice he specified the consequences which he considered to be relevant for the different actions. We restrict ourselves here to three groups of possible consequences which were considered to be most important, i.e. those relating to the position of the government, to that of the East-Indies and that of the motherland. Each decision maker could also specify how likely he thought each outcome was ( $p_{ij}$ ) or for the opposite ( $1-p_{ij}$ ) and the values he attached to the different outcomes ( $V_{ij}$ ). Since he

could consider quite different objects relating to outcomes indicated by the same label under different strategies, the values of these outcomes are not necessarily the same and therefore the V's are indicated by variable subscripts.

Even if all this information is specified, it is not at all clear how a decision maker will make his choice between the 3 strategies. In the literature a large number of models or decision rules are postulated for describing the choices of decision makers in experimental situations (6). Gallhofer and Saris (7) have given examples from real life studies. Since most of the models are described in detail in the literature we restrict ourselves to describing only some choice rules, especially those which will later prove to be applicable to our data.

The Subjective Expected Utility model assumes that a decision maker evaluates all the outcomes of the alternative strategies he perceives and that he can also indicate their probabilities of occurring. The expected utility of a strategy is defined as a composite function of the utilities of the outcomes and their probabilities:

$$EU(S_j) = \sum_i p_{ij} V_{ij}$$

where  $EU(S_j)$  indicates the expected utility under strategy  $j$  and  $p_{ij}$  the probability of the occurrence of outcome  $i$  under strategy  $j$  and  $V_{ij}$  the utility of outcome  $i$  under strategy  $j$ .

The decision rule consists of selecting the strategy with the highest expected utility.

The risk-avoiding rules have been developed by the authors since other models did not fit the data in previous research. (8) The choice rule refers to selecting the strategy with the highest probability of positive outcomes or, which amounts to the same thing - since the sum of the probabilities is assumed to be 1 - of selecting the strategy with the lowest probability of negative outcomes. The risk-avoiding rules can be expressed more formally as follows:

If  $p_{-i} < p_{-j} \Rightarrow S_i$  is chosen

or equivalently

if  $p_{+i} > p_{+j} \Rightarrow S_i$  is chosen.

where  $p_{-i}, p_{-j}$  are the probabilities of negative outcomes under strategy  $i$  or  $j$

and  $p_{+i}, p_{+j}$  are the probabilities of positive outcomes under strategy  $i$  or  $j$ .

When the Dominance or the Lexicographic or the Addition of Utilities rule are used the decision maker splits the outcomes up in several dimensions (also called attributes or aspects). When the choice is made by the dominance rule the decision maker selects that alternative which is better than the other(s) on at least one dimension and not worse than the other strategy (-ies) on all the other attributes.

In the case where a decision maker chooses lexicographically, he first rank-orders the attributes in importance and then chooses the strategy which is most attractive on the most important attribute. If two strategies on this attribute are equally attractive, the decision is based on the next most attractive dimension

in order of importance. When the choice is made by the addition of utilities rule the decision is based on a "summation" of all the values corresponding to the aspects for each strategy. The decision maker then indicates explicitly an overall value statement for each strategy and chooses the strategy with the highest value.

The satisficing rule(9) states that the decision maker has to choose the first strategy he detects which leads to satisfactory outcomes only.

The reversed Simon rule, which has been developed by the authors to encompass political situations for which no satisfactory strategy was available, consists of excluding all the strategies which lead with certainty to negative outcomes only, as long as a strategy exists with the possibility of a positive outcome.

### 3. HYPOTHESES WITH RESPECT TO THE USE OF DECISION RULES

Table 2 specifies our hypotheses with respect to the relationship between the quality (i.e. the level of measurement) of the data and the use of the different decision rules. The category "limited use of probabilities" refers to nominal statements by which we understand that only the possibility of occurring is indicated while ordinal probabilities ("use of probabilities") specify the relative size of the probability. The definition of ordinal and nominal values is similar: nominal values ("limited use of values") only indicate the affective meaning of positive/negative while ordinal values ("use of values") indicate the size of the value.

Table 2: Classification of decision rules with respect to the use of values and probabilities in the choice rule

	use of values	limited use of values
Use of probabilities	SEU model etc.	Risk-avoiding rules
	I	II
Limited use of probabilities	Dominance-, Lexicographic-, Addition of Utilities rule etc.	Simon's Satisficing rule Reversed Simon rule
	III	IV

Table 2 specifies the following hypotheses:

1. In order to use the Subjective Expected Utility model (SEU) the decision makers have to describe their probabilities and values at least in rank-ordered verbal statements. Although more specific information is in fact necessary one can assume that ordinal statements are translations of numerical information into ordinary language. Thus ordinal probabilities and

values are a necessary, but not a sufficient condition for the use of this model. Therefore, we test here the hypothesis that the SEU-model can explain the choices of the decision makers where ordinal probabilities and values have been used by them.

2. In order to use the risk-avoiding rules the decision makers have to describe the decision problem with ordinal probabilities and nominal utility statements. We test whether these rules can describe the choices in the class II cases.
3. In order to use the dominance or the lexicographic rule, the utilities should be rank-ordered while the probabilities could be nominal. Here we test the hypothesis that these rules can describe the choices in the class III cases.
4. Finally, in class IV no ordinal characteristics are required. We test whether the Simon model or the Reversed Simon model can describe the choices for those cases where this description holds. How these tests are done is discussed after we have introduced the data and the text-analysis instrument.

#### 4. THE DATA

The documents used in this study come from the archives of the Dutch Council of Ministers and the Ministry of Foreign Affairs. They have all been published yet. We searched for documents containing the discussion of available strategies with respect to the transference of the seat of the government in the period of June 1940 till February 1941. In total 12 documents were detected discussing this specific topic. They consist of minutes of the Dutch Council of Ministers, Letters from ambassadors to the minister of Foreign Affairs and coded telegrams from the Governor General of the Dutch East-Indies, all of which form our raw data base. As far as we know, our collection of documents is complete with respect to the existing written material on this topic.

#### 5. METHODOLOGY

##### 5.1 The text-analysis instrument

Because a highly reliable coding instrument is important for the analyses, a text-analysis instrument has been developed by the authors for this kind of data. (10) The procedure provides almost optimal intersubjective agreement. (11) The task of the coders is to derive a politician's decision tree on the basis of his written report. It is done in three steps:

1. The coder reads the text
2. He searches the following decision making concepts:
  - available actions of one's own party
  - possible actions of the other party (-ies)
  - possible outcomes for one's own party
  - subjective values of the possible outcomes
  - subjective probabilities of the outcomes and the actions of the other party (-ies)
3. He elaborates a decision tree, combining the different parts of the argument.

These steps are first executed individually and, thereafter a joint solution by a team of two coders is developed. The agreement for the construction of decision trees between individual coders is usually between 0.8 and 1.0.(12) When two teams of coders, who correct each others mistakes, are used, the agreement between teams of coders is very close to 1.0. In this case study, the average agreement between the individual coders relating to 12 decision trees was 0.87. The two coders always came to a unanimous conclusion when comparing their results. It is expected, according to our earlier study(13) that this joint result will usually be identical with the result obtained from other teams of two coders.

## 5.2 The test of the fit of the models

Given the probability and utility statements used by the decision makers, the decision problem can be classified in one of the four classes shown in table 2. As the quality of these probability and utility statements is only a necessary condition for the applicability of the different model(s), the fit of the model to the data remains to be tested. This can be done by applying the decision rule(s) of the given class to the specific case, filling in the probability and utility statements used by the decision maker in the formulas. If this leads to the same conclusion that the decision maker has drawn, we say that the model fits or explains the choice. If the conclusion differs, the model can not explain the choice of the decision maker.

## 5.3 Simplification of the description

In order to obtain a simpler description of the situations, we present in table 3, for the cases where a decision maker used rank ordered probabilities, only the evaluation of the most likely outcome. When a decision maker considered several outcomes as possible, the evaluations of all possible outcomes are indicated. If the decision maker thought that a positive outcome was most likely or possible, we have denoted this by a plus sign. If he thought that a negative outcome was most likely or possible, a minus sign is used. Furthermore we have restricted the overview to only three kinds of outcomes: the consequences relating to the position of the government, to that of the East-Indies and that of the motherland. Sometimes more consequences were mentioned but as the great majority of the decision makers mostly made use of the first three, we have only taken into account these three consequences in our summary in table 3.

# 6. RESULTS

In the following we describe the results of our analysis of the 12 individual decisions dealing with whether or not the Dutch governmental seat should be transferred from London to the East-Indies (see table 1). As they relate to a longer period (from June 1940 till January 1941) they can be subdivided into two phases according to the political developments.

#### 6.1 Decision phase 1, June till August 1940

In a letter dated May 31, with the imminent danger of Italy's entrance into the war on the German side, the Dutch ambassador to Italy advised the minister of Foreign Affairs, Van Kleffens, to transfer the seat of the government to the East-Indies (S1). (14) As an alternative strategy he considered not transferring the governmental seat (S3). For both strategies he examined the same consequences, i.e. whether or not it would be possible to maintain the status quo in the East-Indies with respect to Japan, and whether or not it would be possible to avoid war with Italy. When the government would stay in London (S3), he considered it possible that the status of the East-Indies might be maintained and that they would not have to side with their British Ally in the war against Italy. However, the alternative outcome, i.e. that there would be troubles with Japan in the East-Indies and war with Italy, could also occur. When the seat of the government would be transferred (S1), he was certain that at least the status quo of the East-Indies could be maintained because of the presence of the government in this region, while war with Italy was equally possible, as under the alternative strategy. The decision maker chose the first strategy. Based on the rank-ordered values (15) and the nominal probabilities the ambassador indicated, models of cell III (table 2) had to be tested and the Dominance rule indeed explained the choice. The ambassador thus chose the strategy which was better than the other on one dimension and not worse than the other on all the other attributes.

In June the Council of Ministers seemed to have seriously considered the so called "great plan of the East-Indies" (S1). There is, however, no written material available with respect to the decision arguments. (16)

When Italy entered into the war on June 10, the Dutch government avoided participating directly in the hostilities by not issuing a declaration of war. Nevertheless, measures favorable to the British ally were taken and, on Italy's request diplomatic relations were broken. (17)

Meanwhile a great majority of the ministers supported the transference of the seat of the government to the East-Indies. (18) At the end of June the government sought the assent of the Queen for this decision. This plan namely also assumed that the Queen would follow the government. Queen Wilhelmina, however, strongly opposed this decision, indicating only that she could not physically abide in the climate of the East-Indies and made a counter-proposal to transfer some ministers, the so called "small plan of the East-Indies". (19) Since a majority of the ministers still favored the transference of the government, the Council of Ministers tried to convince the monarch by their arguments. On July 13, Prime-Minister de Geer considered the following three strategies in a letter to the Queen (20): to transfer the seat of the government (S1), to transfer a minority of ministers permanently to the East-Indies (S2) or to not transfer the seat of the government (S3). By adopting the Queen's counter-proposal (S2), there was a high probability that the government would be definitely split which was considered to be negative. As the probability of the alternative, positive outcome was very small, the Council of Mi-



nisters rejected this strategy. When considering S1 and S3, De Geer examined the same aspects of consequences: whether or not the Dutch relations with France would be damaged since France had entered into an armistice with Germany on June 22 and was no longer an ally of the British and Dutch; whether or not the prestige of the Dutch government would decline; and whether or not war with Japan, because of its interest in the East-Indies, could be avoided. When the government would continue to stay in London (S3) the probability was high that the Dutch relations with France would be damaged, that the prestige of the government would decline and that war with Japan would occur. There was, however, also a small probability that besides damage of the relations with France and the decline of the prestige of the government, no war with Japan would occur. In the case where S1 would be adopted, the probability was high that the relations with France would not be damaged, the prestige of the government would not decline and the difficulties with Japan could be peacefully resolved, since the government would be residing in its own territory and would be seen to be less dependent on its British ally. The alternative outcome that besides maintaining good relations with France and the prestige of the government, war with Japan would occur, had a small probability of occurring.

For all strategies the Prime-Minister indicated rank-ordered probabilities and nominal values. The Risk-Avoiding rule (cell II, table 2) had to be tested and indeed explained his choice. Notwithstanding these arguments, the Queen persisted with her counter-proposal. (21) The Prime-Minister, therefore, in a letter to the Queen on July 19, again advised against implementing S2. (22)

When transferring some ministers to the East-Indies (S2) the task of these ministers would certainly not be of much significance, because they would not be able to take part in the deliberations of the remaining Cabinet. The Prime-Minister considered the disadvantages greater than the advantages. In contrary, a transfer of the entire Cabinet (S1), a strategy which was still available, would undoubtedly lead to a more satisfactory fulfillment of the governmental task, since they would be residing in their own territory. The advantages of this strategy were far superior. Based on the nominal probabilities and the ordinal values that the Prime Minister indicated, models of cell III (table 2) had to be tested. The Addition of Utilities rule produced the decision maker's choice. (23) Since the Queen could not be convinced of the merits of the advice of the Cabinet and still requested the implementation of the second strategy, the government proposed that they ask the Governor General's advice on this matter. (24) On August 7, the Governor General also advised against transferring some ministers to the East-Indies (S2). (25)

According to Tjarda van Starkenborgh Stachouwer, only negative outcomes could occur (S2): there was a high probability that these ministers might be considered dispensable, that misunderstanding could arise concerning their competence, and that the difficulties could increase during the Japanese-Dutch negotiations. At least, but also much less likely, the ministers might be considered dispensable and misunderstandings would occur concerning their competence. When one would transfer the Cabinet (S1), the Governor Ge-

neral was certain that both the position of the government and that of the East-Indies would improve. Based on the nominal values and the ordinal probabilities the Risk-Avoiding rule had to be tested and indeed produced the choice of the Governor General. On the same day the Dutch ambassador to Belgium also advised the minister of Foreign Affairs to transfer the seat of the government. (26) When the government would continue to stay in London (S3) its prestige would certainly decline and the Netherlands would not be freed. If they transferred the seat of the government to the East-Indies (S1) at least the Dutch position with respect to the United States would improve; moreover the possibility also existed that war with Japan could be avoided. Based on the nominal values (27) and probabilities the ambassador indicated, models of cell IV (table 2) had to be tested and the Reversed Simon rule produced the choice.

On August 16 the minister of Foreign Affairs, Van Kleffens, communicated to the Dutch ambassador in Belgium the arguments for the final choice of the government to continue to stay in London (S3). (28) Van Kleffens mentioned that the strategy of the transference of the seat of the government (S1), although preferred by a majority of the Cabinet, was no longer available since the Queen had opposed it. The rejection of this strategy did not occur on the basis of a decision rule. The ministers did not discuss, for example, the advantages or disadvantages of disobeying the Queen. The acceptance of the Queen's will even seemed to be constitutionally unnecessary, since the ministers were responsible to the parliament. One therefore can only guess that the government complied with the Queen's wishes as there was no parliament available for consultation.

After having rejected the first strategy, the Council of ministers had considered the following remaining strategies: to transfer a minority of the ministers permanently or temporarily to the East-Indies (S2), to not transfer the seat of the government (S3) and to transfer the seat of the government to another non-Dutch territory (S4). By implementing the fourth strategy the government would have certainly lost its contact with and its influence over the British ally, which was negatively evaluated. The second strategy also was disadvantageous since the Cabinet would be impeded in arriving at decisions because of the lack of at least the continuation of the contact with and the influence over the British ally. Based on the nominal values and probabilities the minister indicated, models of cell IV (table 2) had to be tested and Simon's rule produced the choice. According to the arguments of the minister of Foreign Affairs, the Cabinet had chosen the most satisfactory strategy among the available courses of action. The decisions of this phase are all summarized in table 3 after simplifications described in section 5.3 were applied.

## 6.2 Decision phase 2, January 1941

In the beginning of January 1941, a note from the Governor General reached the Council of Ministers in which the former advised the Cabinet again to transfer the seat of the government to the East-Indies. (29) If the government continued to stay in London (S3) its prestige would certainly decline, its dependence on the British ally

would increase and its relations with the East-Indies would worsen. When the seat would be transferred to the East-Indies (S1) only positive outcomes could occur: the prestige of the government would increase, it could better fulfill its governmental task since it would be less dependent on the British and its relations with the East-Indies would considerably improve which would facilitate problem solving. Based on the nominal values and probabilities the Governor General indicated, the models of cell IV (table 2) had to be tested and both Simon's and the Reversed Simon rule explained the choice.

On January 17 and 18, the Council of Ministers deliberated again on this matter. (30) The arguments of five ministers were complete enough to be subjected to a decision analysis. The minister of Commerce and Industries, who was an advocate of the transference of the seat (S1), reasoned along similar lines to the Governor General. In the case where the government continued to stay in London (S3), its prestige would certainly decline, its dependence on the British would increase and no support would be given to the Governor General. If the government went to the East-Indies (S1) its position would certainly be improved, it could act more independently and support would be given to the Governor General. Based on the nominal values and probabilities the decision maker used, his choice for the first strategy can be explained by Simon's - or the Reversed Simon rule.

The remaining four ministers were advocates of the third strategy. The arguments of the ministers of Education and Colonies were identical. When considering the transference of the seat (S1), they were certain that the government would be accused of relinquishing its common interests with the British, and that this would be fatal for the motherland. In the case where they stayed in London (S3), it was certain that no negative effects would occur: the common interests with the British would be strengthened. Since the decision makers used nominal values and probabilities, models of cell IV (table 2) had to be tested and Simon's or the Reversed Simon rule indeed produced the choice.

The minister of Public Works considered for the first and third strategy the same aspects of consequences (31), i.e. whether or not the position of the government would deteriorate, whether or not it would cause harm to the motherland and the remaining kingdom and whether or not the position of the East-Indies would improve. In the case where they would move to the East-Indies (S1) certainly great, but only temporary advantages would be achieved internationally for the East-Indies. The government, however, would at least lose its influence over the British ally and the possibility also existed that a fatal accident could occur to the Queen and the government during the sea voyage. In the Netherlands an attitude of defeatism would certainly grow. When the government continued to stay in London (S3) although it was certain that no temporary advantages would be achieved for the East-Indies, the position of the government and the motherland could be maintained. As the minister considered the interests of the motherland and the government primary, he chose the third strategy. Based on the nominal probabilities and the ordinal values (32) the decision maker used, models of cell III (table 2) had to be tested and the lexicographic

rule explained the choice. The minister chose the strategy where the most important aspects had the highest value, i.e. a positive value in this case.

Considering the first strategy the minister of Social Affairs was certain that it would only have negative effects: it would not help the East-Indies in the long run, while the government's absence from the centre of decisions would be disadvantageous and the liberation of the motherland would be considered solely a British act. In the case where the government would continue to stay in London (S3), its position would be maintained and the Dutch citizens would not consider their liberation a British act. Based on the nominal values and probabilities, models of cell IV (table 2) had to be tested and Simon's or the Reversed Simon rule indeed produced the choice.

Since there was at this time no clear majority in the Council of Ministers for the transference of the seat to the East-Indies, the government decided to delay the decision in order to ask the Queen's advice. Meanwhile, the Governor General also had proposed that at least the ministers of Colonies and Foreign Affairs should briefly come to the East-Indies in order to discuss further policies with respect to Japan.(33)

As the Queen still had not changed her opinion on the East-Indies plan the Council of Ministers finally decided on February 5 to send the ministers of Colonies and Foreign Affairs for a short consultation to the East-Indies.(34) By then, the plan of the transference of the seat of the government to the East-Indies had finally been abandoned by the government.

### Conclusions

Table 3 summarizes the decisions of the two phases after the simplifications described in section 5.3 were applied. The table shows that in the first phase, all the decision makers who explained their choice in detail, opted for the transference of the seat of the government to the East-Indies. Only a small minority of the Council of Ministers was against it but did not give its arguments. Since this course of action was strongly opposed by the Queen, this strategy was considered by the Cabinet to be no longer available. It is the first time in our research that we have encountered a rejection of a strategy which did not occur on the basis of decision theoretical arguments. As we have already mentioned above, the reason for rejecting this strategy might have been the impossibility of consulting the parliament about it. The Cabinet finally made a choice between the Queen's counter-proposal, i.e. the transference of a minority of ministers to the East-Indies (S2) and no transference (S3). The Cabinet chose at the end of the first phase to stay in London since this was perceived as less damaging to its position than the second strategy.

During the second phase, it was mainly the ministers who were against the transference of the seat who explained their choice in detail. An interesting point is that the decision makers who preferred the first strategy mostly argued that the position of the government

Table 3: Evaluations of the different groups of decision makers during the different phases of the consequences for the government and/or the East-Indies and the homeland which would most probably or possibly occur for the strategies of the transference of the seat of the government (S1), the transference of a minority of ministers (S2) and no transference (S3)

Phase	Consequences	Governor General of the East-Indies	Dutch government						Dutch ambassadors
I May - August 1940	position of the government								May 31 S1 <sup>x</sup> S3
	position of the East-Indies								+/- +/-
	position of the homeland								+ +/-
									0 0
	position of the government		July 13 Prime-Minister S1 <sup>x</sup> S2 S3	July 19 Prime-Minister S1 <sup>x</sup> S2					
	position of the East-Indies								
II November 1940 - January 1941	position of the homeland								
	position of the government	August 7 S1 <sup>x</sup> S3	August 16, Min. of Foreign Affairs S2 S3 <sup>x</sup>						August 7 S1 <sup>x</sup> S3
	position of the East-Indies								
	position of the homeland								
II November 1940 - January 1941	position of the government	Nov. 16 S1 <sup>x</sup> S3	January 17, 18 Min. of Commerce and Industries Min. of Education Min. of Public Works Min. of Social Affairs S1 <sup>x</sup> S3 S1 S3 <sup>x</sup> S1 S3 <sup>x</sup>						
	position of the East Indies								
	position of the homeland								

The abbreviations indicate the following: "x" the chosen strategy; "+" a positive outcome; "-" a negative outcome; "0" the specific outcome was not considered by the decision maker; "+/-" both outcomes considered as possible by the decision maker.

would worsen if they continued to stay in London while it would improve when they went to the East-Indies. They considered the government to be too dependent on the British. The ministers who preferred the third strategy argued, on the contrary, that the position of the government was satisfactory and would continue to be so if they stayed in London, while a transfer of the seat would worsen its position. This group of decision makers attached much value to the contact with the British.

Table 4 summarizes the results with respect to the relationship between the quality of the data and the choice rules.

Table 4: The relationship between the quality of the data and the decision rules which produced the same choice as the decision maker had indicated.

The fitting model	Quality of the data				total
	I	II	III	IV	
SEU	0	0	0	0	0
Risk-avoiding	0	2	0	0	2
Lexicographic, Dominance or Addition of Utilities	0	0	3	0	3
Simon or Reversed Simon	0	0	0	7	7
total	0	2	3	7	12

The table indicates that the decision makers tried to avoid complicated descriptions, using rank-ordered utilities and probabilities at the same time (class I models).

In two cases the rank-ordered probabilities were decisive (class II model) and, in three cases, rank-ordered values (class III model). In the remaining 7 cases, no rank-ordered characteristics were used at all (class IV model). This table clearly indicates, that in all cases, the models which were expected to explain the choices could indeed produce them. This is a remarkable result because this relationship is not self evident, as we have mentioned before. The fact that this perfect relationship nevertheless exists indicates that the mode of formulating the probability and value statements is a sufficient condition for the applicability of a decision rule of the appropriate class. This suggests that given a specific description of the choice problem, i.e. the formulation of the probability and value statements, the choice rule is determined and consequently every decision maker would come to the same conclusion. In order to arrive at a different choice, decision makers have to vary the probabilities and/or values. Table 3 provides a good overview of this process. (35)

FOOTNOTES

- 1 This research was made possible by the research grant Nr. 43-114 of the Dutch organization for the advancement of pure research (Z.W.O.). We thank the coders M. Stouthard and N. van der Zouwe for their careful work.
- 2 For this historical information see also L. de Jong: Het Koninkrijk der Nederlanden in de tweede wereld-oorlog, Vol. 3, The Hague 1970; A.F. Manning: De buitenlandse politiek van de Nederlandse regering in Londen tot 1942, in: Tijdschrift voor Geschiedenis, 91, 1978.
- 3 See: J. von Neumann and O. Morgenstern: The Theory of Games and Economic Behavior, Princeton University Press 1953.
- 4 See: Ch. Vlek and W.A. Wagenaar: Judgement and Decision under uncertainty, in: Handbook of Psychonomics, Vol. II, 1979; and I.N. Gallhofer and W.E. Saris: Strategy choices of foreign policy decision makers: The Netherlands 1914, Journal of Conflict Resolution 1979 (Since this edition contains several errors caused by printing a corrected reprint can be provided by the authors.)
- 5 W.E. Saris and I.N. Gallhofer: A coding instrument for empirical research of political decision making 1981, (manuscript)
- 6 Ch. Vlek and W.A. Wagenaar, op. cit.; H. Montgomery and O. Svenson: On decision rules and information processing among multi-attribute alternatives, Scandinavian Journal of Psychology 1976; O. Svenson: Process descriptions of decision making, in: Organizational Behavior and Human Performance, 1979.
- 7 See: Gallhofer, Saris, Strategy, op. cit., and I.N. Gallhofer, W.E. Saris: The decision of the Dutch Council of Ministers and the Military Commander-in-Chief relating to the reduction of armed forces in autumn 1916, Acta Politica 1, 1975.
- 8 Ibid.
- 9 H.A. Simon: Models of Man, Social and Rational, New York 1957, pp. 248.
- 10 I.N. Gallhofer: Coder's reliability in the study of decision making concepts, replications in time and across topics, in: Methoden en Data Nieuwsbrief, Sociaal Wetenschappelijke sectie van de Vereniging voor Statistiek, nr. 1, February 1978; I.N. Gallhofer and W.E. Saris: An analysis of the argumentation of decision makers using decision trees, in: Quality and Quantity, 13 1979.
- 11 W.E. Saris and I.N. Gallhofer, op. cit.
- 12 The agreement measure ranges from 0 to 1, see Saris, Gallhofer, Coding instrument, op.cit.
- 13 W.E. Saris and I.N. Gallhofer, op.cit.
- 14 Documenten betreffende de buitenlandse politiek van Nederland, periode C, 1940-1945, RGP 157, Nr. 59, Kersten, A.E., Manning, A.F. eds., The Hague
- 15 Since under S1 the outcome with respect to the East-Indies was only positive, while under S3 it also could be negative, a rank-ordering of the values of the consequences could be derived.

- 16 For this period we rely on the diary of G.H.C. Hart, an official of the department of Colonies (p. 31-41). This diary is edited by A.E. Kersten: *Het dagboek van Dr.G.H.C. Hart*, London mei 1940-mei 1941, The Hague 1976.
- 17 RGP 156, Nr. 135.
- 18 See Diary of G.H.C. Hart, p. 30.
- 19 Ibid, p. 30-41. The author of the diary also mentioned a letter of the Queen to the Council of Ministers, dated July 12, which unfortunately could not be retrieved.
- 20 RGP 157, Nr. 171.
- 21 See G.H.C. Hart, p. 50.
- 22 RGP 157, Nr. 188.
- 23 As the decision maker had indicated that the combined advantages of one strategy were more than those of the other without mentioning the combination procedure (addition, multiplication etc.). we do not know how the combination is made. Nevertheless we call this decision rule the "Addition of Utilities" rule since it is the closest approximation.
- 24 G.H.C. Hart, p. 69; Hart also mentioned that the Queen favored the "small plan of the East-Indies" in order to get rid of some ministers she considered incapable. See also RGP 157, Nr. 229.
- 25 Parlementaire Enquete Commissie, "Regeringsbeleid 1940-1945" (PEC 2E), p. 229, telegram nr. 207.
- 26 RGP 157, Nr. 260.
- 27 Since the decision maker did mention different consequences for the two strategies the values of the outcomes could not be compared to derive a rank-ordering.
- 28 RGP 157, Nr. 291.
- 29 RGP 160, Nr. 42; the note is dated November 16, 1940, but was delivered by an envoy beginning of January 1941.
- 30 RGP 160, Nr. 168, 170.
- 31 This minister presented a note for discussion to the Council: Parlementaire Enquete Commissie, "Regeringsbeleid 1940-1945" PEC 2B, appendix Nr. 127. As the minister did not change his opinion during the debates in the Cabinet meeting, we subjected his note to a decision analysis.
- 32 Since the decision maker considered the same aspects for both strategies a rank-ordering could be derived on the basis of the positively and negatively evaluated outcomes.
- 33 RGP 160, Nr. 204.
- 34 RGP 160, Nr. 209.
- 35 Recommended literature: I.N. Gallhofer: *Beslissingen betreffende de eerste politionele actie*, Acta politica, 4 1981; I.N. Gallhofer: *Beslissingen betreffende de tweede politionele actie*, Acta politica, 1 1982; I.N. Gallhofer and W.E. Saris: *A decision theoretical analysis of decision of the Dutch government with respect to Indonesia*, 1982 (Manuscript).